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     (FILE 'HOME' ENTERED AT 13:44:28 ON 23 APR 2003)
     FILE 'CA' ENTERED AT 13:44:34 ON 23 APR 2003
L1            52 S (PIPET? OR DISPENS? OR DILUT?)(5A)(NANOLITER OR NL)
L2            36 S L1 NOT PY>2000
L3             5 S L1 NOT L2 AND PATENT/DT
L4            41 S L2-3

=> d bib,ab 1-41

L4   ANSWER 9 OF 41  CA  COPYRIGHT 2003 ACS
AN   133:249314  CA
TI   Microreactor systems and methods for performing reactions in an unsealed
     environment
IN   Becker, Thomas; Koster, Hubert; Cantor, Charles R.
PA   Sequenom, Inc., USA
SO   PCT Int. Appl., 95 pp.
PI   WO 2000056446     A1   20000928       WO 2000-US6288   20000310
     US 6225061        B1   20010501       US 1999-266409   19990310
PRAI US 1999-266409    A1   19990310
AB   An open microreactor system is described for performing a sub-microliter
     reaction.  The open system can contain a solid support having a target site
     for performing the reaction; a liq. dispensing system such as a nanoliter
     dispensing pipet for dispensing a sub-microliter amt. of a liq. to the
     target site; a temp. control device for regulating the temp. of the
     support; and means for controlling the amt. of liq. dispensed, which
     corresponds to the amt. of liq. that evaps. from the target site.  The
     support can be a (functionalized) bead, pin, comb, wafer, well or
     microchip.  The reaction can include nucleic acid amplification,
     combinatorial library synthesis, biopolymer sequencing or primer oligo base
     extension (PROBE).

L4   ANSWER 10 OF 41  CA  COPYRIGHT 2003 ACS
AN   132:331472  CA
TI   Implementation of nanoliter dispensing in the laboratory
AU   Bulow, Sven
CS   Eppendorf-Netheler-Hinz GmbH, Hamburg, D-22339, Germany
SO   GIT Labor-Fachzeitschrift (2000), 44(4), 396,398-399
LA   German
AB   The nL dispenser Nanozyme is described for a reliable and reproducible
     dosage of vols. ≥10 nL giving its principle and main application fields.

L4   ANSWER 14 OF 41  CA  COPYRIGHT 2003 ACS
AN   131:103851  CA
TI   Apparatus for dispensing a predetermined volume of a liquid
IN   Backes, Monica; Corless, Anthony Robert; Shaw, John Edward Andrew; Sibbald,
     Alastair
PA   Central Research Laboratories Limited, UK
SO   PCT Int. Appl., 20 pp.
PI   WO 9936176        A1   19990722       WO 1999-GB163    19990118
PRAI GB 1998-933       A    19980117
AB   A dispensing app. is described for dispensing a predetd. vol. (1 nl to 2
     μl) of a liq., e.g., liq. biochem. reagents, and comprises a liq.
     reservoir, a channel with an outlet for conveying the liq. from the
     reservoir to the outlet, and means for generating a pulse of gas.  The flow
     of gas causes a predetd. vol. of liq. to be ejected from the outlet.  The
     outlet comprises a pair of openings in the channel which face one another,
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the liq. being retained between the openings by surface tension in the absence of a flow of gas. The gas flow is directed towards one of the openings. The app. avoids contamination of the liq., and can be produced as a low cost disposable unit. The app. is less sensitive to liq. viscosity than existing devices.

L4 ANSWER 16 OF 41 CA COPYRIGHT 2003 ACS
AN 130:47042 CA
TI MultiPROBE nL complements drug discovery assay miniaturization
AU Driscoll, Jennifer; Delmendo, Ron; Papen, Roeland; Sawutz, David
CS Small Molecule Chemistry, Amgen, Inc., Thousand Oaks, CA, 91320, USA
SO Journal of Biomolecular Screening (1998), 3(3), 237-239
AB The Packard MultiPROBE nL is designed to enable the MultiPROBE Automated Liq. Handling System to aspirate and dispense nanoliter vols. Several features add confidence to small vol. transfers. A preview of nanoliter dispensing can be seen on a video camera monitor. In addn. to the std. wash station, syringe and ultrasonic flushes can be run at the start of a program to prevent dirt or air obstructions. The MultiPROBE nL can transfer ionic, nonionic, and solns. contg. org. solvents such as DMSO directly from master to assay plates and into high-d. plate arrays. Addnl., the MultiPROBE nL increases the efficiency of generating dose response curves for secondary screening by eliminating a diln. step. IC50 values obtained after compd. prepn. with the instrument are consistent with those values previously detd. using an MultiPROBE 208.

L4 ANSWER 20 OF 41 CA COPYRIGHT 2003 ACS
AN 128:272123 CA
TI A pneumatically actuated micropipetting device
AU Szita, Nicolas; Buser, Rudolf
CS Institute of Mechanics, ETH Zurich, Zurich, CH-8092, Switz.
SO Proceedings of SPIE-The International Society for Optical Engineering (1998), 3258(Micro- and Nanofabricated Structures and Devices for Biomedical Environmental Applications), 156-163
AB A valveless micropipetting device is realized with an integrated sensor which can aspirate and dispense liq. vols. without any valves, hence without any reflow or dead vol. With an external pneumatic actuation, aspirating and dispensing are demonstrated from 190 nL -6 μL of water. Measurements showed a std. deviation of down to 1%. An integrated capacitive sensor allows monitoring of the pressure throughout the pipetting process and detect malfunctions, e.g. clotting of the pipetting tip. The aspiration mechanism is used in combination with a micromachined reaction chamber and a miniaturized optical anal. system.

L4 ANSWER 28 OF 41 CA COPYRIGHT 2003 ACS
AN 109:66130 CA
TI Pneumatic microsyringe for use as an injector in open tubular liquid chromatography and as a dispenser in microanalysis
AU Kennedy, Robert T.; Jorgenson, James W.
CS Dep. Chem., Univ. North Carolina, Chapel Hill, NC, 27599-3290, USA
SO Analytical Chemistry (1988), 60(15), 1521-4
AB A pneumatic microsyringe is described and characterized for use as a microinjector for open tubular liq. chromatog. and for use as a microdispenser. As a microinjector, the syringe had a relative std. deviation of 2.7% in vol. delivered for 10-nL injections on a 15 μm inner diam. column and showed the same contribution to peak broadening as other methods of injection. The vol. injected is easily changed by simply changing the length of time the injection is made. This device is useful for injecting samples of limited vol. As a microdispenser, the device had

a relative std. deviation of 3.38% in vol. delivered for dispensing 0.248 nL. In this fashion the syringe can be used to add internal stds. or reagents to small samples. The syringe can be calibrated for microdispensing by measuring the size of a droplet formed from injecting an aq. soln. into mineral oil.

L4 ANSWER 29 OF 41 CA COPYRIGHT 2003 ACS
AN 108:189019 CA
TI Piston stroke pipet for nanoliter delivery
IN Koeppen, Bernd; Neymeyer, Hans Georg; Quandt, Ingeborg; Moeschwitzer, Gerhard
PA Ministerium des Innern, Ger. Dem. Rep.
SO Ger. (East), 2 pp.
PI DD 251086 A1 19871104 DD 1986-292579 19860717
PRAI DD 1986-292579 19860717
AB The title pipet for delivery of fluids in the nL range has a 3-stroke operation where the 1st stroke fixes and delivers the fluid vol., the over stroke expels the residual liq., and the after stroke forms an air cushion in the tip for preventing contamination of the fluid yet present in the tip.

L4 ANSWER 30 OF 41 CA COPYRIGHT 2003 ACS
AN 100:82289 CA
TI Method for the preparation of biological fluids, at volumes of less than a nanoliter, for their quantitative electron probe analysis
AU Roinel, N.
CS Dep. Biol., CEN Saclay, Gif-sur-Yvette, 91191, Fr.
SO Microanal. X Biol. (1983), 133-9. Editor(s): Quintana, Carmen; Halpern, Sylvain. Publisher: Soc. Fr. Microsc. Electron., Paris, Fr.
LA French
AB The prepn. of biol. fluids for element detn. by x-ray microanal. is discussed with respect to pipets for delivering vols. <1 nL, the prepn. of std. solns., prepn. and deposit of samples, and conditions for anal., and examples are given of the prepn. of a std. soln. for the detn. of various elements in mammalian kidney and of std. curves for the detn. of elements in mammalian plasma.

L4 ANSWER 32 OF 41 CA COPYRIGHT 2003 ACS
AN 99:154575 CA
TI New techniques and tools for clinical chemistry
AU Hieftje, Gary M.
CS Dep. Chem., Indiana Univ., Bloomington, IN, 47405, USA
SO Clinical Chemistry (Washington, DC, United States) (1983), 29(9), 1659-64
AB Several new tools of potential use in clin. chem. are described and evaluated. The first, intended to minimize required sample vols., is a device with which a total sample vol. of 1 μL can be dispensed in the form of 1000 identical aliquots. Any no. of such nanoliter aliquots can be taken if larger samples are needed. The 2nd new tool is one for detecting anions or cations sepd. by ion chromatog. Unlike conventional conductometric detectors used in ion chromatog., the new system offers potential sensitivities in the submicrogram/L range and useful operating ranges up to 100 mg/L. The 3rd tool is a scheme for background correction in at. absorption spectrometry; the new technique requires no special auxiliary sources or double-beam optics. Finally, fluorescence time-decay curves and fluorescence lifetimes are shown to be able to overcome the effects of diffusional quenching and scattering resulting from turbidity of solns. in clin. fluorometry.

L4 ANSWER 40 OF 41 CA COPYRIGHT 2003 ACS
AN 67:50890 CA
TI Handling microliter and submicroliter quantities of solutions
AU Sanz, Manuel C.
SO Memoirs of the Society for Endocrinology (1967), No. 16, 27-35
AB The actual state of instrumentation for the quant. handling of submicroliter quantities is discussed. A new nanoliter pipette is described. Procedures for pipette calibration and for correct manipulation are given.

L4 ANSWER 41 OF 41 CA COPYRIGHT 2003 ACS
AN 62:62591 CA
OREF 62:11123b-d
TI Constant volume, self-filling nanoliter pipet --construction and calibration
AU Prager, Denis J.; Bowman, Robert L.; Vurek, Gerald G.
CS Natl. Heart Inst., Bethesda, MD
SO Science (1965), 147(3658), 606-8
AB Pipets ranging from <1 to 200 nanoliters can be constructed by a fairly simple mech. procedure consisting of sealing, by fusion, a short length of small-bore quartz tubing into a long piece of soft glass support-tubing of larger bore. When the tip of the pipet is introduced into fluid, the quartz tubing fills automatically and completely by capillary action. Application of pressure by a syringe delivers a known vol. of fluid with a repeatability of 1%. The pipets are calibrated either by radioactive or fluorescence techniques, and are esp. useful for transferring biol. fluids.

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